

zenith



## SERVICE MANUAL

Product Type: LCD TV  
Chassis: ML-012B  
Manual Series:  
Manual Part #:  
Model Line:  
Product Year: 2003

Model Series:

L20V36

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Zenith Electronics Corporation  
201 James Record Road  
Huntsville, Alabama 35824-1513

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# PRODUCT SAFETY

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## IMPORTANT SAFETY NOTICE

This manual was prepared for use only by properly trained audiovisual service technicians. When servicing this product, under no circumstances should the original design be modified or altered without permission from Zenith Electronics Corporation. All components should be replaced only with types identical to those in the original circuit and their physical location, wiring, and lead dress must conform to original layout upon completion of repairs. If any fuse (or Fusible Resistor) in this TV receiver is blown, replace it only with the factory specified fuse type and rating. When replacing a high wattage resistor (Oxide Metal Film Resistor, over 1W), keep the resistor 10mm away from PCB. Always keep wires away from high voltage or high temperature parts.

Special components are also used to prevent shock and fire hazard. These components are indicated by the letter "x" included in their component designators and are required to maintain safe performance. No deviations are allowed without prior approval by Zenith Electronics Corporation. Service work should be performed only after you are thoroughly familiar with these safety checks and servicing guidelines.

Circuit diagrams may occasionally differ from the actual circuit used. This way, implementation of the latest safety and performance improvement changes into the set is not delayed until the new service literature is printed.

**CAUTION:** Do not attempt to modify this product in any way.

Never perform customized installations without manufacturer's approval.

Unauthorized modifications will not only void the warranty, but may lead to property damage or user injury.

## GENERAL GUIDANCE

An Isolation Transformer should always be used during the servicing of a receiver whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating to protect against personal injury from electrical shocks. It will also protect the receiver and its components from being damaged by accidental shorts of the circuitry that may be inadvertently introduced during the service operation.

Before returning the receiver to the customer, always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as antennas, terminals, etc., to be sure the set is safe to operate without damage of electrical shock.

## LEAKAGE CURRENT COLD CHECK (ANTENNA COLD CHECK)

With the instrument's AC plug removed from AC source, connect an electrical jumper across the two AC plug prongs. Place the AC switch in the on position, connect one lead of ohm-meter to the AC plug prongs tied together, and touch other ohm-meter lead in turn to each exposed metallic parts such as antenna terminals, phone jacks, etc. If the exposed metallic part has a return path to the chassis, the measured resistance should be between  $1M\Omega$  and  $5.2M\Omega$ . When the exposed metal has no return path to the chassis the reading must be infinite. Any other abnormality that exists must be corrected before the receiver is returned to the customer.

## ELECTROSTATICALLY SENSITIVE DEVICES

Some semiconductor (solid-state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on the body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as an ESD mat, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charge sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil, or comparable conductive material.)
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

**Caution:** Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise, seemingly harmless motion, such as the brushing together of your clothing or the lifting of your foot from a carpeted floor, can generate static electricity sufficient to damage an ES device.)

## REGULATORY INFORMATION

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: Reorient or relocate the receiving antenna; Increase the separation between the equipment and receiver; Connect the equipment into an outlet on a circuit different from that to which the receiver is connected; Consult the dealer or an experienced radio/TV technician for help.

The responsible party for this device's compliance is:

Zenith Electronics Corporation  
201 James Record Road  
Huntsville, AL 35824, USA  
Digital TV Hotline: 1-800-243-0000

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## SPECIFICATIONS

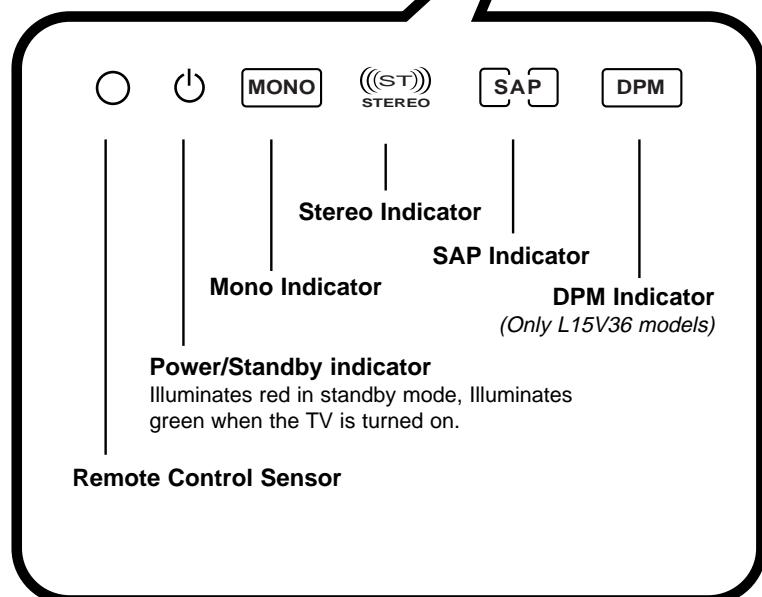
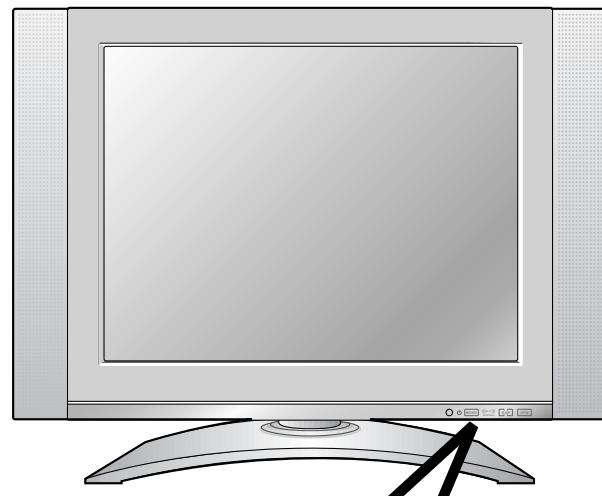
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Model	L15V36	L20V36
Horizontal size (inch)	15.28	22.68
Height (inch)	15.17	18.64
Thickness (inch)	3.33	6.86
Weight (pound)	11.68	22.05
<b>Power requirements</b>	DC 12V/3.5A	
* CAUTION : For use only with Model No. SAD6012SE AC Adapter, manufactured by H & E co., Ltd.		
<b>Television system</b>	NTSC	
<b>Television channels</b>	VHF : 2 ~ 13, UHF : 14 ~ 69 Cable : 01 ~ 125	
<b>Television Screen</b>	LCD Panel	
<b>Power consumption</b>	45 W	
<b>External antenna impedance</b>	75 Ω	
<b>Audio output</b>	1 W + 1 W	
<b>Adapter (DC power)</b>	:	In : AC 100-240V ~ 1.5A-0.6A 50/60Hz, 115~180VA Out : DC 12V, 5A
* CAUTION : For use only with Model No. SAD6012SE AC Adapter, manufactured by H & E co., Ltd.		
Power supply cordset	:	Standard North America three wire earth-grounding with flexible cord SJT type or higher type.
* CAUTION : If replacement becomes necessary, replace it with an exact duplicate. Contact any Zenith authorized service center.		

## DESCRIPTION OF CONTROLS

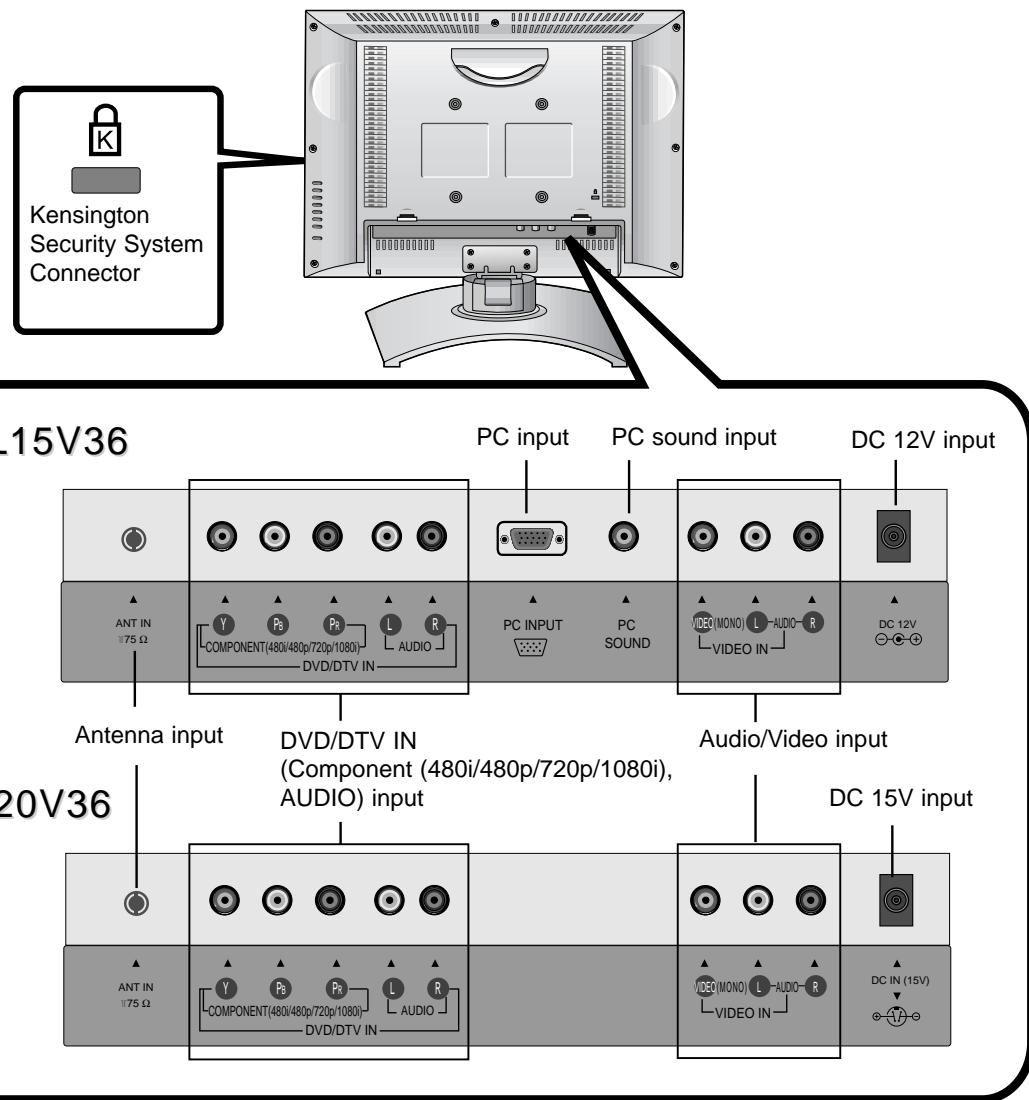
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Front of the TV



## DESCRIPTION OF CONTROLS

### Back of the TV

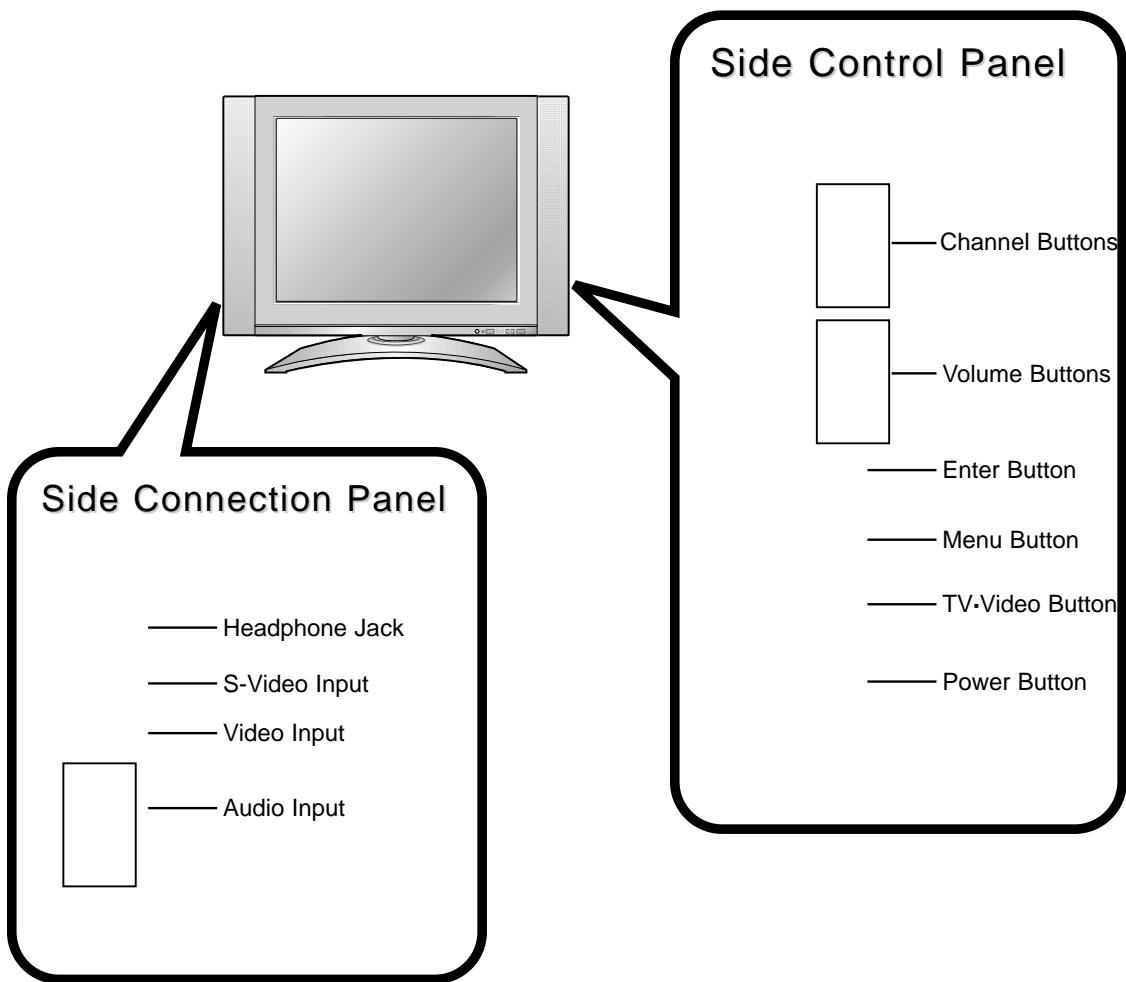


- This manual mainly explains for L15V36 connections.

## DESCRIPTION OF CONTROLS

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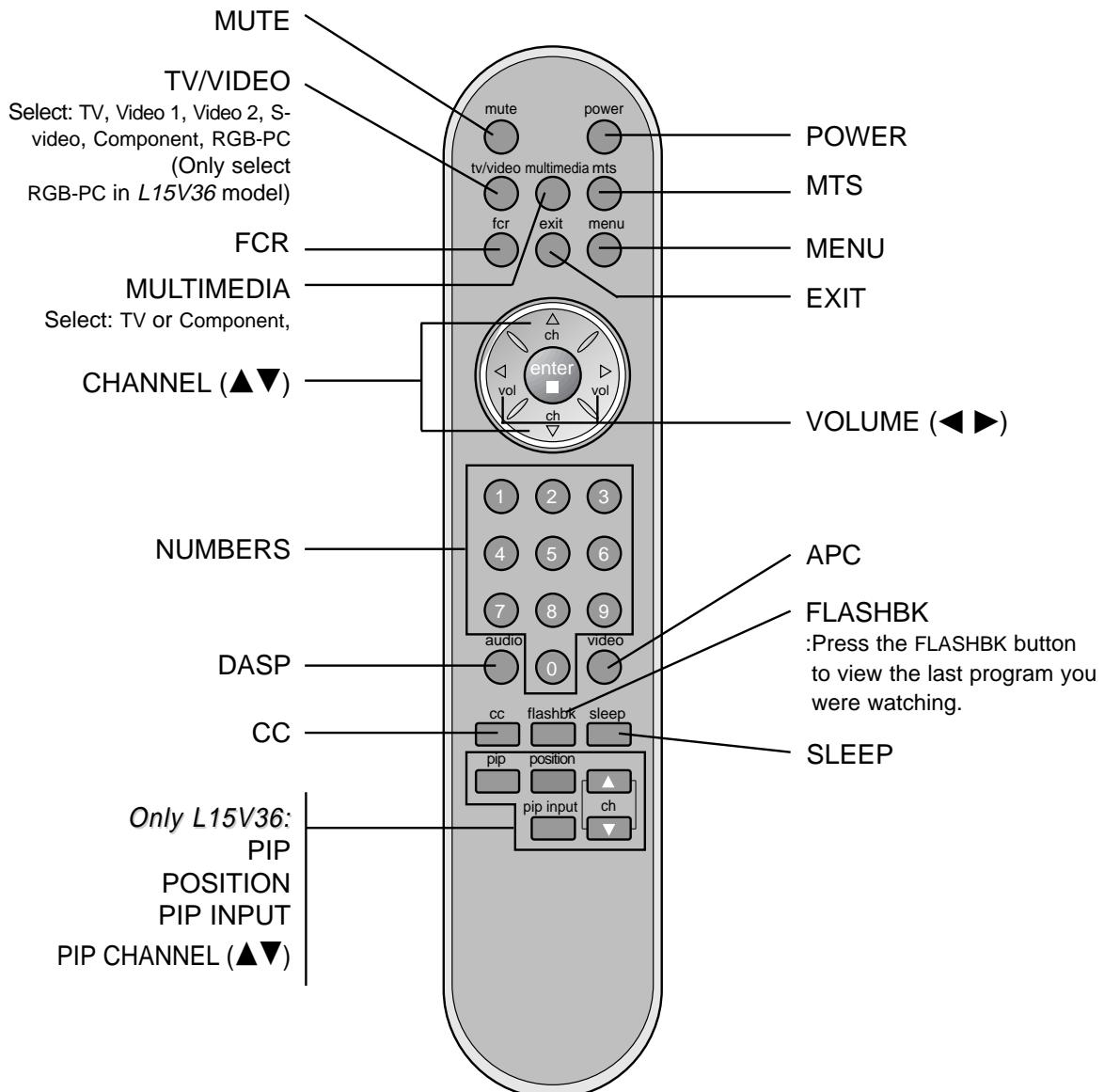
### Side of the TV



## DESCRIPTION OF CONTROLS

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### Remote Control Buttons



# ADJUSTMENT INSTRUCTION

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## 1. Application Object

This instruction is for the application to the LCD TV.

## 2. Notes

- (1) This set uses an adapter, so connect the adapter to the TV correctly before adjustment.
- (2) These adjustments must be performed in the correct sequence.
- (3) These adjustments must be performed at  $25\pm5^{\circ}\text{C}$  of temperature and  $65\pm10\%$  of relative humidity.
- (4) The input voltage of the receiver must be kept at 100~220V, 50/60Hz during adjustment.
- (5) The set must be operated for 30 minutes before adjustment. Heat Run must be performed with the full white signal or a TV noise signal.

## 3. Component Mode Adjustment

: Component Model only

### 3-1. Required Test Equipment

- (1) MSPG-925LTH, Pattern Generator for Digital TV 1080i mode Color-Bar signal output, Digital TV Set-Top Box
- (2) This time the Y input signal Level which passes the input vertical resistance of the Set must become the 1Vp-p.
- (3) Remote controller for adjustment (SVC Remocon)

### 3-2. Preparation for Adjustment

- (1) Perform Heat Run for more than 30 minutes with a white pattern.
- (2) Connect the signal from a pattern generator to the LCD TV's component Input Jack.

### 3-3. YPbPr ADJUST Adjustment

- (1) Receive the Color Bar Pattern signal of Digital TV 1080i Mode from Pattern Generator.
- (2) Select the YPbPr ADJUST of the adjustment mode(SVC Menu Mode) by pressing the IN-START Key(or SVC Key) on the remote controller for adjustment(SVC).
- (3) Start the adjustment by pressing the  $\blacktriangleleft$ ,  $\triangleright$  Key(Volume Key) in the YPbPr ADJUST of the adjustment mode.
- (4) The "To Set" letter of OSD Box top of the screen center is exchanged with the "OK" and when, it completes a adjustment.

## 4. PC Input Mode Adjustment

: 15 Inch Model only

### 4-1. Required Test Equipment

- (1) 801GF(or VG819), Pattern generator with a Gray Pattern of 16(11) tones.
- (2) Remote controller for adjustment (SVC Remocon)

### 4-2. Preparation for Adjustment

- (1) Perform Heat Run for more than 30 minutes with a white pattern.
- (2) Connect the signal from a pattern generator to the LCD TV's PC Input Jack(D-Sub).

### 4-3. Auto Gray Adjustment

- (1) Apply the gray signal of XGA(1024X768) 16 tones(H: 31-214 Pattern, V: 60-84 Pattern) by using 801GF. Or apply the gray signal by using VG819, Pattern generator with a Gray Pattern of 16(11) tones.
- (2) Select the adjustment mode(SVC Menu Mode) by pressing the ADJ Key(or SVC Key) on the remote controller for adjustment(SVC) and adjust the Auto gray from 0 to 1 by using Volume + Key.

# ADJUSTMENT INSTRUCTION

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## 5. Position of Mode Adjustment : 15 Inch Model only

Timing of Mode Table

\* H[dot]/V[line]

Mode	VGA-60	VGA-67	VGA-72	VGA-75	VGA-85	SVGA-56	SVGA-60	SVGA-72
H_total	800	864	832	840	832	1024	1056	1040
H_display	640	640	656	640	640	800	800	800
H_blankning	160	224	176	200	192	224	256	240
H_sync	96	64	40	64	56	72	128	120
H Polarity	NEG.	NEG.	NEG.	NEG.	NEG.	POS	POS	POS
H_bp	48	96	120	120	80	128	88	64
H_fp	16	64	16	16	56	24	40	56
H-freq[kHz] /Clk[MHz]	31.469 25.175	35.0 30.24	37.861 31.5	37.5 31.5	43.269 36.0	35.156 36.0	37.879 40.0	48.077 50.0
V_total	525	525	520	500	509	625	628	666
V_display	480	480	496	480	480	600	600	600
V_blankning	45	45	24	20	29	25	28	66
V_sync	2	3	3	3	3	2	4	6
V Polarity	NEG	NEG	NEG	NEG	NEG	POS	POS	POS
V_bp	33	39	20	16	25	22	23	23
V_fp	10	3	1	1	1	1	1	37

Mode	SVGA-75	SVGA-85	XGA-60	XGA-70	XGA-75	MAC-75	XGA-85
H_total	1056	1048	1344	1328	1312	1152	1376
H_display	800	800	1024	1024	1024	832	1024
H_blankning	256	248	320	304	288	320	352
H_sync	80	64	136	136	96	64	96
H Polarity	POS	POS	NEG		POS	NEG	POS
H_bp	160	152	136	144	176	224	208
H_fp	16	32	160	24	16	32	48
H-freq[kHz] /Clk[MHz]	46.875 49.5	53.674 56.25	48.363 65.0	56.476 75.0	60.023 78.75	49.725 57.283	68.677 84.997
V_total	625	631	806	806	800	667	808
V_display	600	600	768	768	768	624	768
V_blankning	25	31	38	38	32	43	40
V_sync	3	3	6	6	3	3	3
V Polarity	POS	POS	NEG	NEG	POS	NEG	POS
V_bp	21	27	29	29	28	39	36
V_fp	1	1	3	3	1	1	1

# ADJUSTMENT INSTRUCTION

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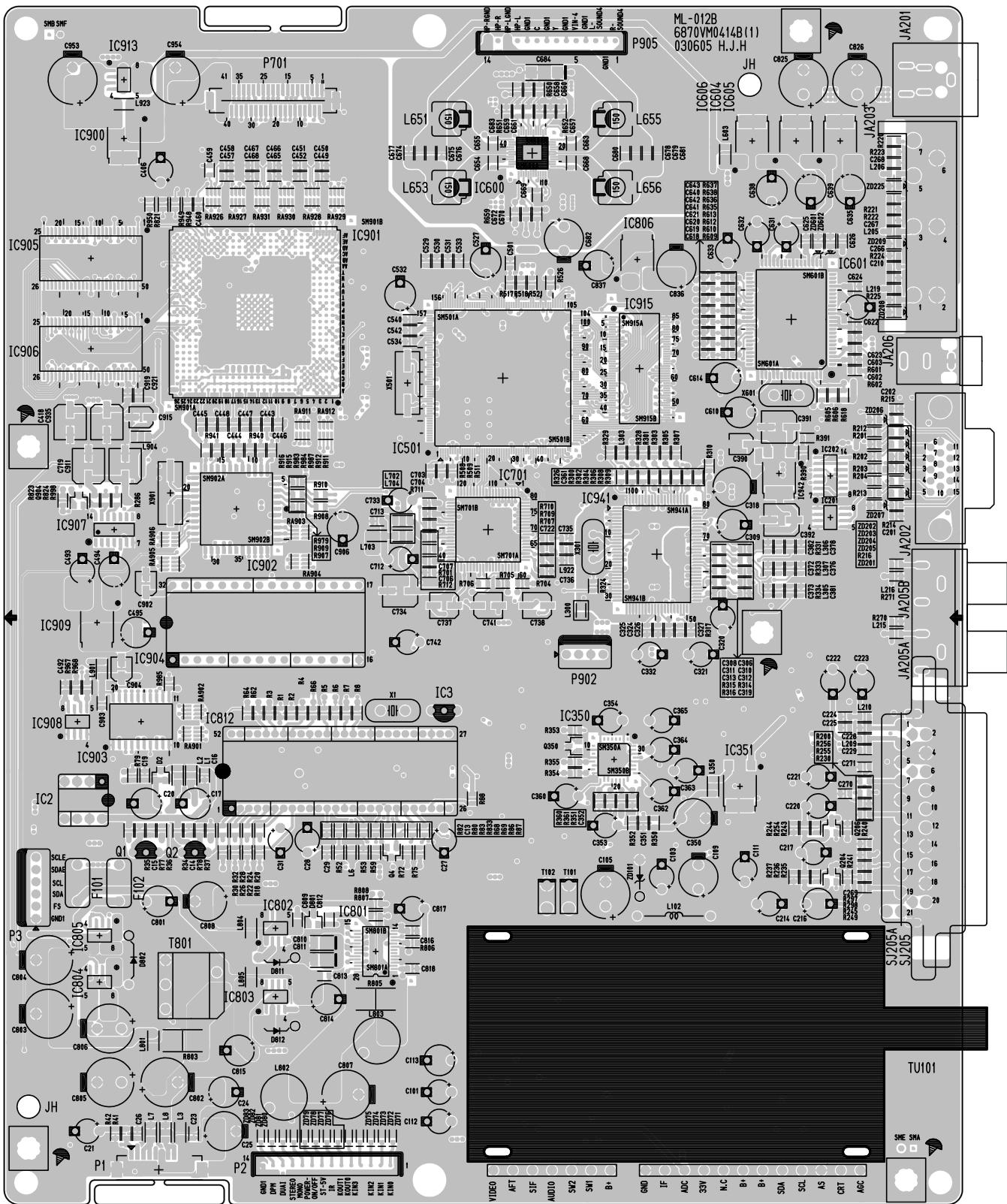
Mode	VGA350-70	VGA350-85	VGA400-70	VGA400-85
H_total	800	832	800	832
H_display	640	640	640	640
H_blankning	160	192	160	192
H_sync	96	64	96	64
H Polarity	POS	POG	NEG	NEG
H_bp	48	96	48	96
H_fp	16	32	16	32
H-freq[kHz] /Clk[MHz]	31.468 25.17	37.86 31.47	31.46 25.17	37.86 31.5
V_total	449	445	449	445
V_display	350	350	400	400
V_blankning	99	95	49	45
V_sync	2	3	2	3
V Polarity	NEG	NEG	POS	POS
V_bp	60	60	35	41
V_fp	37	32	12	1

## 6. EDID(The Extended Display Identification Data): 15 Inch Model only

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00	00	FF	FF	FF	FF	FF	FF	00	30	E5	D7	3A	01	00	00	00
10	00	0B	01	01	78	1F	17	70	E8	C3	A0	A3	54	4C	97	24
20	14	50	54	BF	E8	80	31	59	3B	D9	45	59	61	59	71	59
30	81	40	81	80	01	01	10	0E	01	01	01	01	01	01	01	01
40	01	01	01	01	01	01	01	01	F9	15	01	01	01	01	01	01
50	01	01	01	01	01	01	01	01	01	01	64	19	00	40	41	00
60	26	30	18	88	36	00	0E	C3	10	00	00	1E	00	00	00	FD
70	00	32	55	1E	46	0D	00	0A	20	20	20	20	20	20	00	C8

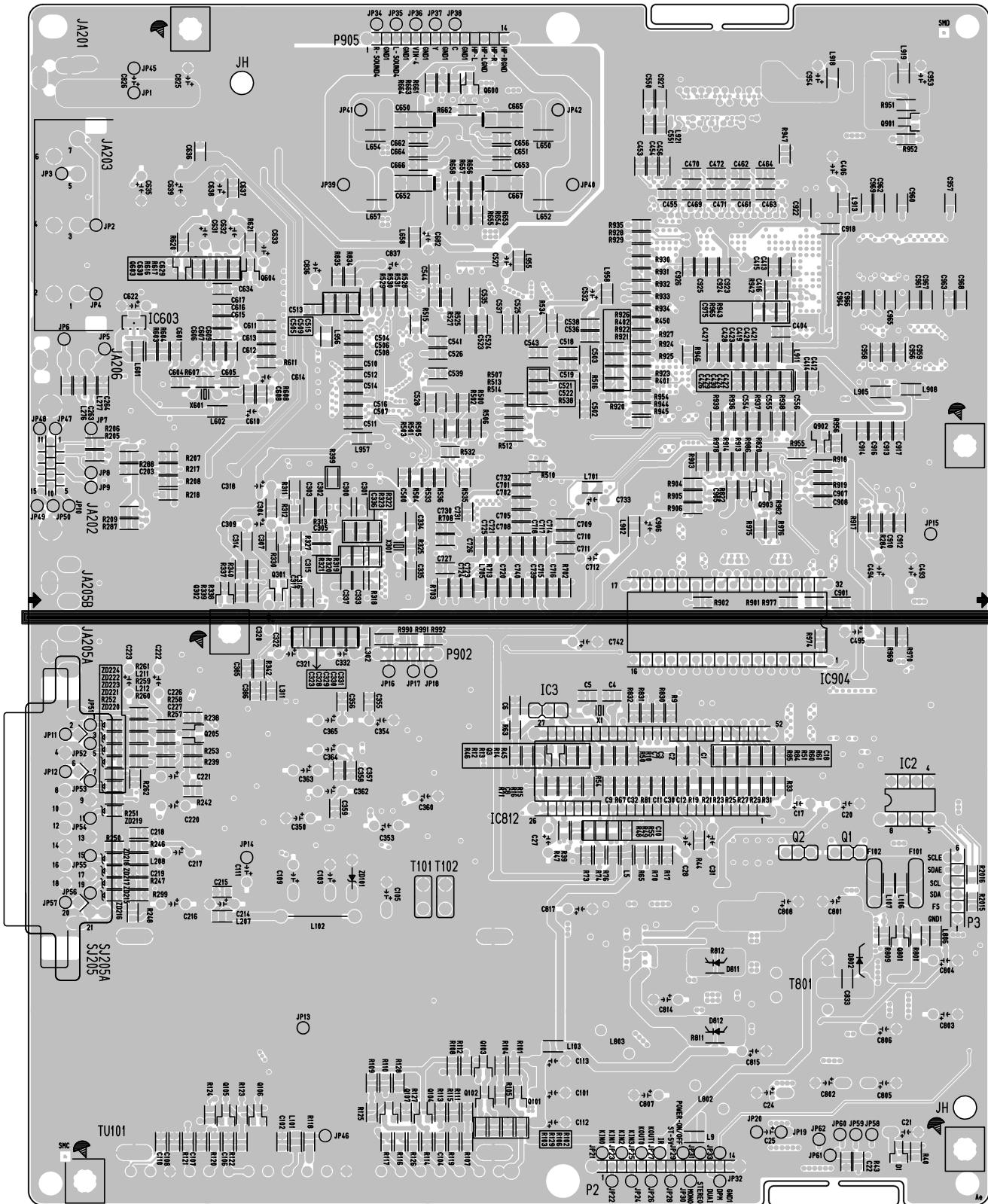
## PRINTED CIRCUIT BOARD

## MAIN(TOP)



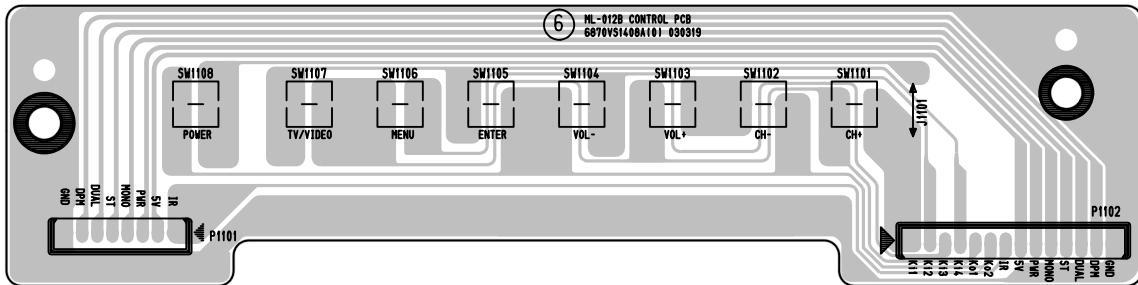
# PRINTED CIRCUIT BOARD

## MAIN(BOTTOM)

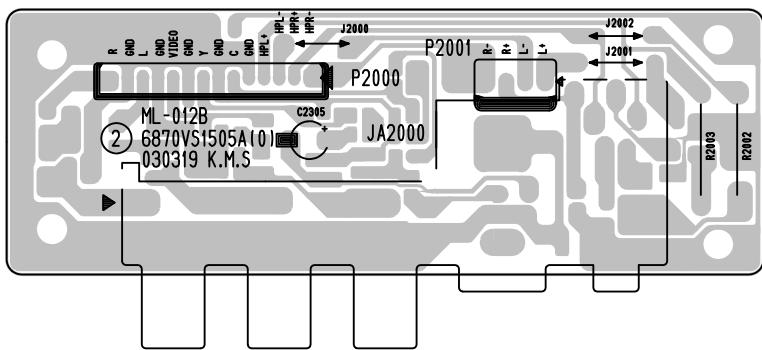


## PRINTED CIRCUIT BOARD

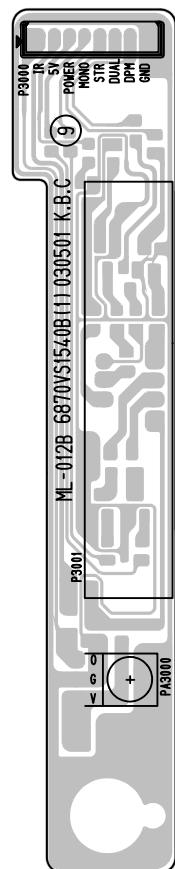
## CONTROL



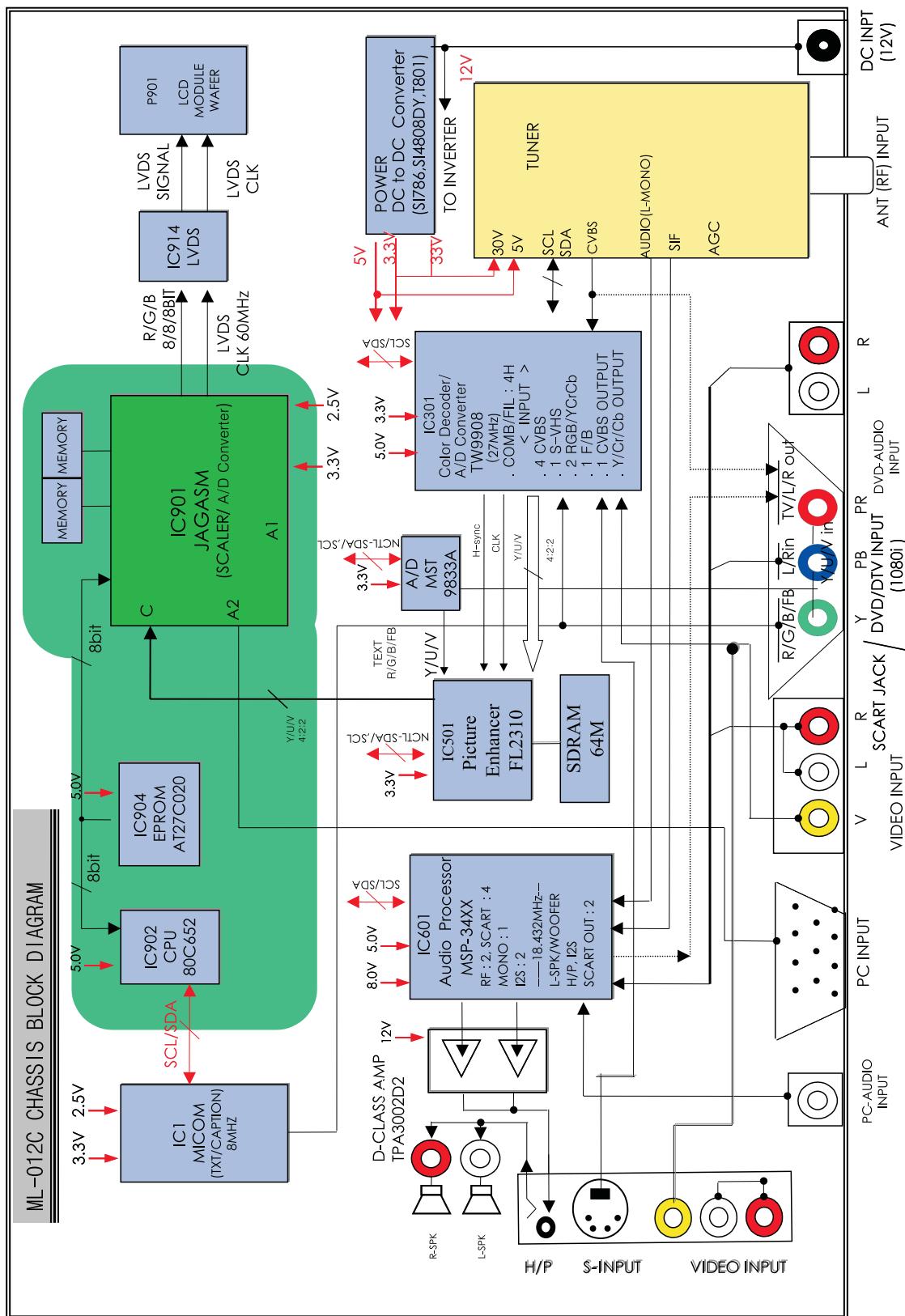
**SIDE A/V**



## LED ASSY

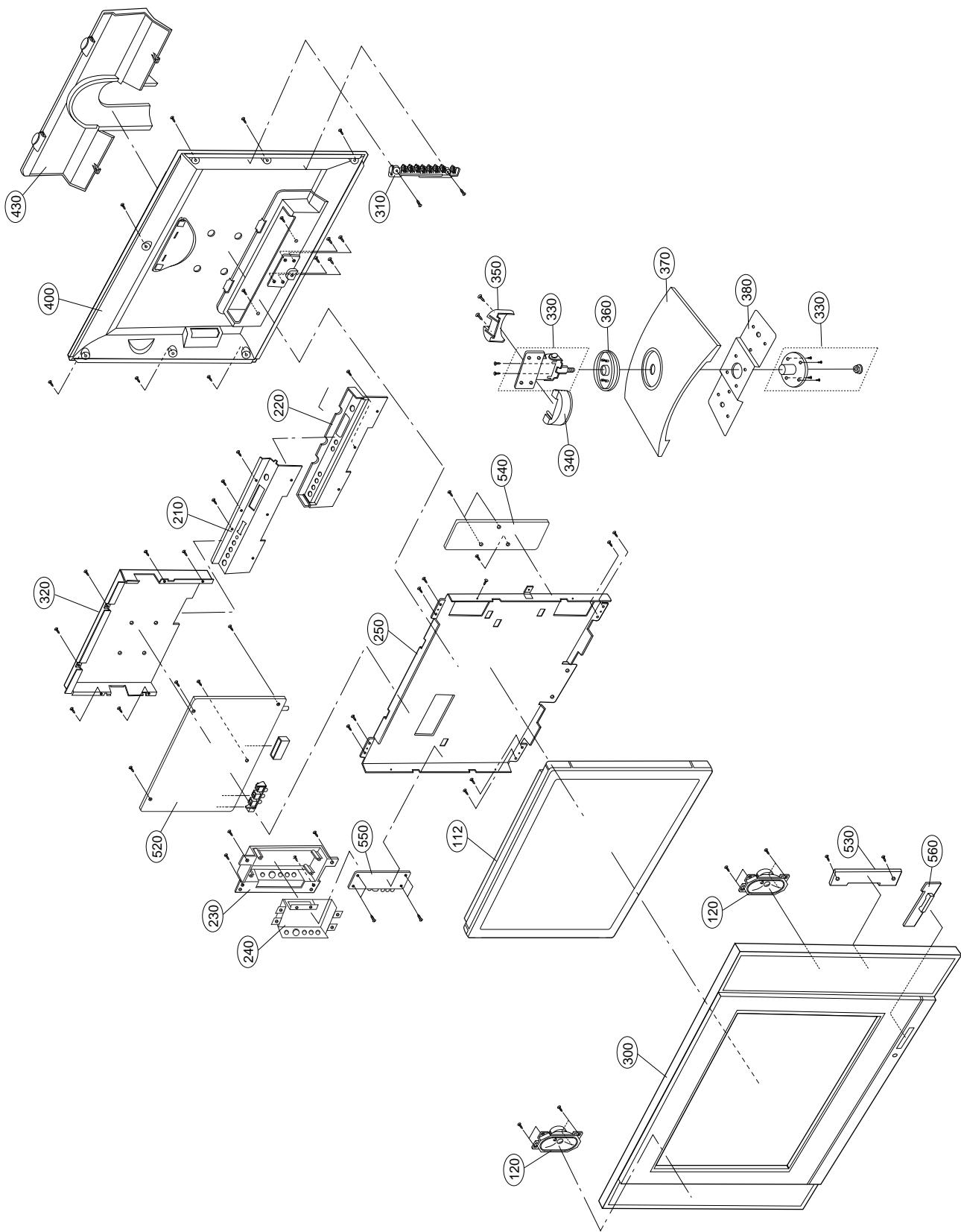


# BLOCK DIAGRAM



## EXPLODED VIEW

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## EXPLODED VIEW PARTS LIST

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No.	PART NO.	DESCRIPTION
112	6304VT2011B	LCD MODULE,LC201V02-A3(IPS) LG PHILPS TFT COLOR 20.1
120	6400GKTX01A	SPEAKER,FULLRANGE F1527C-6428 K-TONE(GENERAL) 8OHM 7/12W
210	4950V00141A	METAL,SHIELD NON REAR AV, 20LA60
220	4810V00764D	BRACKET,REAR AV RU-20LA60 ML012B HIPS 40AF
230	4810V00765C	BRACKET,SIDE AV RU-15LA60 ML012B HIPS 40AF
240	4950V00142A	METAL,SHIELD NON SIDE AV, 20LA60/15LA60
250	4950V00132A	METAL,MAIN FRAME NON 20LA60
300	3091V00491C	CABINET ASSEMBLY,RU-20LA60 STEREO ML012B
310	5020V00776B	BUTTON,CONTROL RU-20LA60 ABS, HF-380 8KEY
320	4950V00140B	METAL,SHIELD SBHG 20LA60
330	4950V00157C	METAL,HINGE ASSY SPCC(CR) 20LA60
340	4810V00767B	BRACKET,STAND HINGE FRONT RU-20LA60 ML012B ABS, HF-380 .
350	4810V00768B	BRACKET,STAND HINGE COVER RU-20LA60 ML012B ABS, HF-380 .
360	4810V00766B	BRACKET,DECO STAND RU-20LA60 ML012B ABS, HF-380 .
370	4810V00769B	BRACKET,STAND RU-20LA60 ML012B ABS, HF-380 BASE
380	4950V00133A	METAL,STAND NON BASE 20LA60
400	3809V00339C	BACK COVER ASSEMBLY,RU-20LA60 NON
430	3550V00297B	COVER,REAR AV RU-20LA60 ABS, HF-380 .
520	6871VMMQ09A	PCB ASSEMBLY,MAIN ML012B RU-20LA60
530	6871VSMV38A	PCB ASSEMBLY,SUB CONT ML012B RZ-15/20LA60 CONTROL ASSY
540	6633VA0003Q	INVERTER ASSEMBLY,15V NON K.S. LC201V02-A3 IPS FRONTEK
550	6871VSMV40C	PCB ASSEMBLY,SUB A/V ML012B RU-15/20LA60 SIDE A/V ASSY
560	6871VSMV43A	PCB ASSEMBLY,SUB ML012B 20 INDEX LED ASSY

# REPLACEMENT PARTS LIST

For Capacitor & Resistors, the characters at 2nd and 3rd digit in the P/No. means as follows;

CC, CX, CK, CN : Ceramic	RD : Carbon Film
CQ : Polyester	RS : Metal Oxide Film
CE : Electrolytic	RN : Metal Film
	RF : Fusible

RUN DATE : 2003.6.11

LOCA. NO	PART NO	DESCRIPTION	LOCA. NO	PART NO	DESCRIPTION			
<b>IC</b>								
IC1	0IZZVC0067A	M37136EFSP DIP 52P ST ML012B	Q301	0TR150400BA	CHIP 2SA1504S(ASY) KEC			
IC2	0IAL241610B	AT24C16A-10PI-2.7 8PIN	Q302	0TR150400BA	CHIP 2SA1504S(ASY) KEC			
IC3	0IFA752700A	KA75270Z 3 TP RE-SET IC	Q350	0TR150400BA	CHIP 2SA1504S(ASY) KEC			
IC350	0ISO204000A	CXA2040AQ 32P,QFP BK IIC BUS VIDEO	Q801	0TR387500AA	CHIP 2SC3875S(ALY) KEC			
IC351	0IMCRFA010A	KA7809R, FAIRCHILD 2P	Q901	0TR387500AA	CHIP 2SC3875S(ALY) KEC			
IC501	0IMCRGN001B	FLI2310BC 208P PQFP TRAY DIGITAL VIDEO	Q902	0TR387500AA	CHIP 2SC3875S(ALY) KEC			
IC600	0IMCRTI022D	TPA3004D2 48P PQFP TRAY 9WSTEREO AUDIO	Q903	0TR387500AA	CHIP 2SC3875S(ALY) KEC			
IC601	0IMCRMN007A	MSP3421G QA B8 V3 80P	Q904	0TR387500AA	CHIP 2SC3875S(ALY) KEC			
IC603	0IKE704200J	KIA7042AF SOT-89 TP 4.2V	<b>DIODE</b>					
IC604	0IMCRFA009A	KA78M08RTM 2P	D1	0DD181009AB	KDS181 TP KEC - 85V 300MA			
IC605	0IMCRFA008A	KA78M05RTM 2P	D2	0DD181009AB	KDS181 TP KEC - 85V 300MA			
IC606	0IMCRKE010A	KIA7812AF 2P DPACK R/TP 12V	D801	0DD181009AB	KDS181 TP KEC - 85V 300MA			
IC701	0IMCRM3001A	MST9883A 80P LQFP TRAY A/D CONVERTER	D802	0DD100009AM	EU1ZV(1) TP SANKEN			
IC801	0ITC786000A	SI786 28SSOP TP DUAL-OUTPUT POWER	D811	0DD414809ED	1N4148 TP GRANDE			
IC806	0IMCRFA020A	RC1587DT_36 3P TO252 DPAK R/TP 2.5V	D812	0DD414809ED	1N4148 TP GRANDE			
IC900	0IMCRKE010A	KIA7812AF 2P DPACK R/TP 12V	ZD101	0DZ330009BA	ZENERS,HZT33			
IC901	0IMCRG2004B	JAGASM A4 SAGE 352BALL TRAY HIGHLY FLEXIBLE	ZD3000	0DZRM00178A	ZENERS,UDZS TE-17 5.1B			
IC902	0IPH806520A	80C652 40 PLCC ST 8-BIT MICROCONTROLLRES	ZD3001	0DZRM00178A	ZENERS,UDZS TE-17 5.1B			
IC903	0IPH743730E	74HCT373 D 20SOP R/TP ADDRESS	ZD71	0DZRM00178A	ZENERS,UDZS TE-17 5.1B			
IC904	0IZZVC0065A	M27C512_10F1 DIP 32P BK 512K	ZD72	0DZRM00178A	ZENERS,UDZS TE-17 5.1B			
IC905	0ISS416162C	K4S161622E-TC80 50TSOP	ZD73	0DZRM00178A	ZENERS,UDZS TE-17 5.1B			
IC906	0ISS416162C	K4S161622E-TC80 50TSOP	ZD74	0DZRM00178A	ZENERS,UDZS TE-17 5.1B			
IC907	0IPH740400G	74HC04D HEX INVERTER 14P,SOP TP	ZD75	0DZRM00178A	ZENERS,UDZS TE-17 5.1B			
IC908	0IMCRAL006A	AT24C16AN-10SI-2.7 8P SOIC R/TP EEPROM	ZD76	0DZRM00178A	ZENERS,UDZS TE-17 5.1B			
IC909	0IMCRFA020A	RC1587DT_36 3P TO252 DPAK R/TP 2.5V 3A	ZD77	0DZRM00178A	ZENERS,UDZS TE-17 5.1B			
IC915	0IMMRHY033A	HY57V643220C(L)T-6 86P TSOP TRAY 64M	ZD79	0DZRM00178A	ZENERS,UDZS TE-17 5.1B			
IC941	0IMCRTW002A	TW9908 100P PQFP TRAY VIDEO	ZD80	0DZRM00178A	ZENERS,UDZS TE-17 5.1B			
IC942	0IMCRFA020A	RC1587DT_36 3P TO252 DPAK R/TP 2.5V 3A	ZD81	0DZRM00178A	ZENERS,UDZS TE-17 5.1B			
<b>TRANSISTOR</b>								
IC802	0TFVI80001A	VISHAY SI4808DY R/TP SO-8 30V 7.5A OLD	ZD82	0DZRM00178A	ZENERS,UDZS TE-17 5.1B			
IC803	0TFVI80001A	VISHAY SI4808DY R/TP SO-8 30V 7.5A OLD	ZD83	0DZRM00178A	ZENERS,UDZS TE-17 5.1B			
IC804	0TFVI80005A	VISHAY SI4963DY R/TP SO-8 -20V 6.2A	<b>CAPACITOR</b>					
IC805	0TF492509AA	SI4925DY TP TEMIC 30V 6.1A SO-8	C101	0CE476DH618	47UF STD 25V 20%			
IC913	0TF492509AA	SI4925DY TP TEMIC 30V 6.1A SO-8	C103	0CE106DK618	10UF STD 50V M			
Q102	0TR387500AA	CHIP 2SC3875S(ALY) KEC	C105	0CE687DD618	680UF STD 10V 20%			
Q204	0TR387500AA	CHIP 2SC3875S(ALY) KEC	C111	0CE105DK618	1UF STD 50V M			
Q205	0TR387500AA	CHIP 2SC3875S(ALY) KEC	C113	0CE107DF618	100UF STD 16V M			
Q206	0TR387500AA	CHIP 2SC3875S(ALY) KEC	C17	0CE107DF618	100UF STD 16V M			
Q3	0TR387500AA	CHIP 2SC3875S(ALY) KEC	C20	0CE107DF618	100UF STD 16V M			
Q3000	0TR387500AA	CHIP 2SC3875S(ALY) KEC	C21	0CE106DF618	10UF STD 16V M			
Q3001	0TR387500AA	CHIP 2SC3875S(ALY) KEC	C214	0CE476DF618	47UF STD 16V M			
Q3002	0TR387500AA	CHIP 2SC3875S(ALY) KEC	C217	0CE106DF618	10UF STD 16V M			
Q3003	0TR387500AA	CHIP 2SC3875S(ALY) KEC	C220	0CE106DF618	10UF STD 16V M			
Q3004	0TR387500AA	CHIP 2SC3875S(ALY) KEC	C221	0CE106DF618	10UF STD 16V M			
Q3005	0TR387500AA	CHIP 2SC3875S(ALY) KEC	C2305	0CE225DK618	2.2UF STD 50V 20%			
			C24	0CE107DF618	100UF STD 16V M			
			C25	0CE227DF618	220UF STD 16V M			

## REPLACEMENT PARTS LIST

LOCA. NO	PART NO	DESCRIPTION	LOCA. NO	PART NO	DESCRIPTION
C309	0CE106DF618	10UF STD 16V M	C680	0CK224DF56A	220000PF 2012 16V 10%
C31	0CE105DK618	1UF STD 50V M	C681	0CK224DF56A	220000PF 2012 16V 10%
C318	0CE107DD618	1000UF STD 10V M	C682	0CE227DF618	220UF STD 16V M
C318	0CE337DD618	330UF STD 10V M	C683	0CK105DF64A	1UF 2012 16V 20%
C320	0CQ3331N509	0.033U 100V K	C712	0CE107DD618	1000UF STD 10V M
C321	0CE106DF618	10UF STD 16V M	C719	0CE107SF6DC	1000UF MVG 16V M
C332	0CE107DD618	100UF STD 10V M	C733	0CE107DD618	1000UF STD 10V M
C350	0CE227DF618	220UF STD 16V M	C734	0CE107SF6DC	1000UF MVG 16V M
C353	0CE476DF618	47UF STD 16V M	C742	0CE107DD618	1000UF STD 10V M
C354	0CE336DF618	33UF STD 16V M	C801	0CE476DK618	47UF STD 50V M
C360	0CE105DK618	1UF STD 50V M	C802	0CE477DF618	470UF STD 16V 20%
C362	0CE474CK636	0.47UF SHL,SD 50V 20%	C803	0CE477DF618	470UF STD 16V 20%
C363	0CE474CK636	0.47UF SHL,SD 50V 20%	C804	0CE477DF618	470UF STD 16V 20%
C364	0CE474CK636	0.47UF SHL,SD 50V 20%	C805	0CE477DF618	470UF STD 16V 20%
C365	0CE474CK636	0.47UF SHL,SD 50V 20%	C806	0CE477DF618	470UF STD 16V 20%
C390	0CE106SF6DC	10UF MVG 16V 20%	C807	0CE477DF618	470UF STD 16V 20%
C391	0CE107SF6DC	1000UF MVG 16V M	C808	0CE227DH618	220UF STD 25V M
C392	0CE107SF6DC	1000UF MVG 16V M	C814	0CE107DH618	1000UF STD 25V M
C406	0CE476DF618	47UF STD 16V M	C815	0CE107DH618	1000UF STD 25V M
C418	0CE107SF6DC	1000UF MVG 16V M	C817	0CE475DK618	4.7UF STD 50V 20%
C493	0CE106DF618	10UF STD 16V M	C825	0CE337DH618	330UF STD 25V M
C494	0CE107DF618	1000UF STD 16V M	C826	0CE337DH618	330UF STD 25V M
C495	0CE107DF618	1000UF STD 16V M	C836	0CE227DF618	220UF STD 16V M
C527	0CE107DF618	1000UF STD 16V M	C837	0CE227DD618	220UF STD 10V M
C532	0CE107DF618	1000UF STD 16V M	C902	0CE106SF6DC	10UF MVG 16V 20%
C610	0CE107DF618	1000UF STD 16V M	C904	0CE106SF6DC	10UF MVG 16V 20%
C614	0CE107DF618	1000UF STD 16V M	C906	0CE107DF618	1000UF STD 16V M
C618	0CK224DF56A	220000PF 2012 16V 10%	C911	0CE107SF6DC	1000UF MVG 16V M
C619	0CK224DF56A	220000PF 2012 16V 10%	C915	0CE106SF6DC	10UF MVG 16V 20%
C620	0CK224DF56A	220000PF 2012 16V 10%	C935	0CE107SF6DC	1000UF MVG 16V M
C621	0CK224DF56A	220000PF 2012 16V 10%	C953	0CE477DF618	470UF STD 16V 20%
C622	0CE476DF618	47UF STD 16V M	C954	0CE477DF618	470UF STD 16V 20%
C631	0CE106DF618	10UF STD 16V M			<b>JACK</b>
C632	0CE106DF618	10UF STD 16V M			
C633	0CE335DK618	3.3UF STD 50V 20%			
C635	0CE107DF618	1000UF STD 16V M	JA2000	6613V00018A	JACK ASSEMBLY,PMJ026A (7PIN)
C638	0CE107DF618	1000UF STD 16V M	JA201	6612VAH001C	JACK,PHONE DC-003 4PIN POWER
C639	0CE107DF618	1000UF STD 16V M	JA203	6613V00004P	JACK ASSY,PJ6054P 3P
C640	0CK224DF56A	220000PF 2012 16V 10%	JA205A	380-336E	JACK,RCA WA6013E 1P
C641	0CK224DF56A	220000PF 2012 16V 10%	JA205B	380-336F	JACK,RCA WA6013E 1P
C642	0CK224DF56A	220000PF 2012 16V 10%	SJ205	6612VJH008D	JACK,RCA PJ6063D DVD IN 3P
C643	0CK224DF56A	220000PF 2012 16V 10%			<b>COIL &amp; TRANSFORMER</b>
C656	0CK105DF64A	1UF 2012 16V 20%			
C658	0CK105DF64A	1UF 2012 16V 20%	L102	0LA0272K139	INDUCTOR,27UH K
C659	0CK105DF64A	1UF 2012 16V 20%	L651	6140VR0005B	COIL,LF7045T-330MR82
C662	0CK105DF64A	1UF 2012 16V 20%	L653	6140VR0005B	COIL,SLF7045T-330MR82
C669	0CK105DF64A	1UF 2012 16V 20%	L655	6140VR0005B	COIL,SLF7045T-330MR82
C670	0CK105DF64A	1UF 2012 16V 20%	L656	6140VR0005B	COIL,SLF7045T-330MR82
C672	0CK105DF64A	1UF 2012 16V 20%	L802	6140VB0004B	COIL,CHOKE 26UH
C676	0CK224DF56A	220000PF 2012 16V 10%	L803	6140VB0004A	COIL,CHOKE 9.5UH
C677	0CK224DF56A	220000PF 2012 16V 10%			

## REPLACEMENT PARTS LIST

LOCA. NO	PART NO	DESCRIPTION	LOCA. NO	PART NO	DESCRIPTION
T801	6170VTCA30A	TRANSFORMER,SMPS[COIL] EPC 13-Z 320UH	L300	6210TCE001A	FILTER,EMC HB-1S2012-080JT
<b>RESISTOR</b>					
R2002	0RD1200H609	120 OHM 1/2 W 5.00%	L301	6210TCE001G	FILTER,EMC HH-1M3216-501
R2003	0RD1200H609	120 OHM 1/2 W 5.00%	L302	6210TCE001A	FILTER,EMC HB-1S2012-080JT
R803	0RHZVTA001A	0.025 OHM 1W 2%	L350	6210TCE001G	FILTER,EMC HH-1M3216-501
R805	0RHZVTA001A	0.025 OHM 1W 2%	L601	6210TCE001G	FILTER,EMC HH-1M3216-501
RA901	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OHM 5%	L602	6210TCE001G	FILTER,EMC HH-1M3216-501
RA902	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OHM 5%	L603	6210TCE001G	FILTER,EMC HH-1M3216-501
RA903	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OHM 5%	L658	6210TCE001G	FILTER,EMC HH-1M3216-501
RA904	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OHM 5%	L7	6210TCE001G	FILTER,EMC HH-1M3216-501
RA905	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OHM 5%	L701	6210TCE001G	FILTER,EMC HH-1M3216-501
RA906	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OHM 5%	L702	6210TCE001G	FILTER,EMC HH-1M3216-501
RA911	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OHM 5%	L703	6210TCE001G	FILTER,EMC HH-1M3216-501
RA912	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OHM 5%	L704	6210TCE001G	FILTER,EMC HH-1M3216-501
RA926	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OHM 5%	L8	6210TCE001G	FILTER,EMC HH-1M3216-501
RA927	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OHM 5%	L801	6210TCE001G	FILTER,EMC HH-1M3216-501
RA928	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OHM 5%	L804	6210TCE001G	FILTER,EMC HH-1M3216-501
RA929	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OHM 5%	L805	6210TCE001G	FILTER,EMC HH-1M3216-501
RA930	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OHM 5%	L806	6210TCE001G	FILTER,EMC HH-1M3216-501
RA931	0RRZVTA001A	MNR-14-E0A-J-101 R OHM 100 OHM 5%	L808	6210TCE001G	FILTER,EMC HH-1M3216-501
<b>SWITCH</b>					
SW1101	140-313B	SWITCH,TACT 2LEAD 160G	L901	6210TCE001G	FILTER,EMC HH-1M3216-501
SW1102	140-313B	SWITCH,TACT 2LEAD 160G	L902	6210TCE001G	FILTER,EMC HH-1M3216-501
SW1103	140-313B	SWITCH,TACT 2LEAD 160G	L904	6210TCE001G	FILTER,EMC HH-1M3216-501
SW1104	140-313B	SWITCH,TACT 2LEAD 160G	L905	6210TCE001G	FILTER,EMC HH-1M3216-501
SW1105	140-313B	SWITCH,TACT 2LEAD 160G	L908	6210TCE001G	FILTER,EMC HH-1M3216-501
SW1106	140-313B	SWITCH,TACT 2LEAD 160G	L911	6210TCE001G	FILTER,EMC HH-1M3216-501
SW1107	140-313B	SWITCH,TACT 2LEAD 160G	L913	6210TCE001G	FILTER,EMC HH-1M3216-501
SW1108	140-313B	SWITCH,TACT 2LEAD 160G	L918	6210TCE001G	FILTER,EMC HH-1M3216-501
<b>FILTER &amp; CRYSTAL</b>					
L1	6210TCE001G	FILTER,EMC HH-1M3216-501	L922	6210TCE001A	FILTER,EMC HB-1S2012-080JT
L101	6210TCE001G	FILTER,EMC HH-1M3216-501	L955	6210TCE001G	FILTER,EMC HH-1M3216-501
L103	6210TCE001G	FILTER,EMC HH-1M3216-501	L956	6210TCE001G	FILTER,EMC HH-1M3216-501
L106	6210TCE001G	FILTER,EMC HH-1M3216-501	L957	6210TCE001G	FILTER,EMC HH-1M3216-501
L107	6210TCE001G	FILTER,EMC HH-1M3216-501	L957	6210TCE001G	FILTER,EMC HH-1M3216-501
L205	6210TCE001A	FILTER,EMC HB-1S2012-080JT	L958	6210TCE001G	FILTER,EMC HH-1M3216-501
L206	6210TCE001A	FILTER,EMC HB-1S2012-080JT	X1	156-A01P	RESONATOR,CRYSTAL HC49U 8.000MHZ
L207	6210TCE001G	FILTER,EMC HH-1M3216-501	X1	156-A01P	RESONATOR,CRYSTAL HC49U 8.000MHZ
L2100	6210TCE001A	FILTER,EMC HB-1S2012-080JT	X301	156-A02X	RESONATOR,CRYSTAL HC49U 27.000MHZ
L2101	6210TCE001A	FILTER,EMC HB-1S2012-080JT	X501	6202VDT002J	RESONATOR,CRYSTAL SX-1 13.500000MHZ
L2105	6210TCE001A	FILTER,EMC HB-1S2012-080JT	X601	156-A02M	RESONATOR,CRYSTAL HC49U 18.432MHZ
L2106	6210TCE001A	FILTER,EMC HB-1S2012-080JT	X901	6202VDT002B	RESONATOR,CRYSTAL SX-1 SC14.3MHZ
<b>MISCELLANEOUS</b>					
P1102	6631V20016G	CONNECTOR ASSEMBLY,14P 2.0MM			
P2000	6631V20016C	CONNECTOR ASSEMBLY,14P 2.0MM			
PA3000	6726VV0006D	REMOTE CONTROLLER RECEIVER,38.0KHZ			
TU101	6700VNF019E	TUNER,TAFH-H001P LG NTSC FS			
<b>ACCESSORIES</b>					
A1	3828VA0308T	MANUAL,OWNERS ML012B ZENITH EN			
A2	6710V00091H	REMOTE CONTROLLER,ML024C			
A3	6410VUH003A	POWER CORD,PS204-001 1800MM			
A4	6634B00043J	ADAPTER,AC-DC SAD7015SE 15V 4.5A			

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